

## **Sample Data Standard**

**[Modified Version for Example Purposes Only—Do Not Use]**

## **Wildlife Observation Data Standard**

## 1. Introduction

- a. **Description of Standard** – This standard governs all wildlife observation data collected for the purpose of managing wildlife resources on lands for which the BLM is responsible. This standard addresses observed physical characteristics like identification, age classification, and activity, and information regarding the location and method of observation. This data is used to derive things like ‘crucial winter ranges for a given species’ or ‘nesting territories of a given species.’ This standard will enhance wildlife management by allowing standardized wildlife information to be combined with other resource information when deriving land management recommendations.
- b. **Affected Groups** - This standard directly affects field biologists and technicians who observe and tag wildlife, and who record other data concerning wildlife populations. GIS technical support staff and data administrators will participate in the management and use of data stored in accordance with this standard.
- c. **Sponsor** - This standard is sponsored by the Deputy State Director, Alaska Division of Lands of Resources.

2. **Data Category – link to Bureau Enterprise Architecture** – This standard addresses the BEA High-Level Data Subject Area “Environmental Interests.”

3. **Data Steward Identification (including lead agency if appropriate)** –

TITLE	NAME	PHONE NUMBER	EMAIL ADDRESS
State Data Steward	Jeff Denton	(907) 267-1233	Jeff_Denton@ak.blm.gov
National Data Steward	Cal McCluskey	(208) 452-7761	Cal_Mccluskey@blm.gov
State Data Administrator	Linda Ricketts	(907) 271-4645	Linda_Ricketts@ak.blm.gov
GIS Technical Support	Ralph Falsetto	(907) 267-1229	Ralph_Falsetto@blm.gov

4. **Data Set Characteristics** – This section identifies the characteristics of the wildlife observation data as a whole.

- a. **Overall Security** – This data is to be accessible to the wildlife biologists and their staff members to whom they have granted access to this database. This data base may contain sensitive information that might be withheld under the

Freedom of Information Act. “Create, Read, Update, and/or Delete” privileges will be granted to appropriate personnel of BLM Alaska by the State Data Steward for this data, who will ensure that these privileges are reviewed and updated regularly.

Access and security rules for the wildlife observation data are specified in metadata. These are enforced by the Wildlife Observation System software application, and assurance of similar enforcement must be provided if the data are collected or manipulated using other software. The user id and date are collected for all transactions performed within the Wildlife Observation System. This provides an audit trail to identify and correct any intentional or unintentional security occurrences.

**b. Data Collection and Maintenance Protocols –**

**i. Accuracy requirements –**

A wide range of positional accuracy is acceptable for locations of wildlife observations. Observations range from GPS locations to sightings marked manually on 1:63,360 topographic maps. Minimum accuracy should therefore correspond to National Map Accuracy Standard. Each of the *methods* for collecting location information will be documented. There are data elements to accommodate the following location designators: latitude and longitude of a point, legal land description, UTM measurements and polygon id.

The observation method, observing agency, observer’s name, date and project data elements can all be used to differentiate varying levels of accuracy so that lower quality data can be excluded from a particular analysis if appropriate.

**ii. Projection and Datum**

Features are stored in Geographic coordinates (latitude and longitude) using the North American Datum, 1983(NAD 83). Since source data can be in a variety of coordinate systems, the data collection system must convert coordinates to NAD 83 prior to storage.

**iii. Precision**

Storage Precision - All coordinates are stored using double precision. Features also are stored as double precision points.

Collection Precision - Due to the nature of wildlife observations and the varying means of determining the location, collection precision is allowed to vary based on method of observation and the observers experience. The most precise locations will be from GPS, while the least precise are acknowledged to be from marked location on topographic maps

- iv. **Collection and input protocols** – The Wildlife Observation System (WOS) software application can be used to structure and simplify data input. Using WOS also helps to ensure that wildlife observation data are input correctly, in conformance with this standard. WOS is a 4GL application that employs the Informix™ Relational Database Management System (RDBMS) for data storage and access, and provides geospatial display and query via an ArcView™-based mapping tool. Data also may be collected using other aides and software tools, so long as it conforms to this standard. For example, portable collection devices (Personal Digital Assistants, etc.) can be programmed to collect data in a format that enforces conformity to this standard.
- v. **Update procedures** - Each Field Office data steward is responsible to ensure that data are collected in strict conformity to this standard. Update of all data will occur continuously, as new observations are obtained and entered into the wildlife observation data base by field biologists and technicians.

c. **Data Quality** –

- i. **Transaction level data quality** - Quality control at the time of transactions has two aspects. Conformity to valid domains and business logic must be ensured with any method of collection. When the Wildlife Observation System software is used, these are enforced automatically for all data elements. For example: if the “species observed” is a *Brown/Grizzly Bear*, the valid “Activity” selection could not include “*flying*”. In addition to data type and field length, business rules specifying mandatory entries and valid values are enforced for many data elements. The second type of quality control at transaction time is procedural. Each new record will be visually reviewed and approved by a second qualified person on a continuing schedule, to be agreed with the State Data Steward for this data.

Valid domain values and business logic are maintained by the State Data Steward. If another software tool is used for data collection, please contact the State Data Steward for a current list of the domain

values and business rules. These are independent of software applications that may be used to store or analyze the data, and must be enforced by automated or procedural methods, in order to protect the integrity of the wildlife observation database.

- ii. **Monitoring level data quality** – Monitoring-level quality assurance involves a periodic evaluation across the full extent of the wildlife observation data base. The State Data Stewards, in conjunction with the District Data Stewards, are responsible for reviewing the data at least once per year to assure that established protocols are being followed in the creation and maintenance of the data. In addition, the State Data Stewards will schedule and lead periodic assessments of the quality and completeness of this data, following current BLM guidance on data quality evaluation and reporting methods.

- d. **Relationship to Other Standards** – This standard is related to a number of standards that govern the valid values for some attributes:

The standard for:

Vegetation: L. A. Veireck et. al.. 1992. The Alaska Vegetation Classification. U.S.D.A. Forest Service, Pacific Northwest Research Station. General Technical Report PNW-GTR-286. July 1992. 278pp.

Mammals: Wilson, D. E. and D. M. Reeder, eds. 1993. Mammal species of the world: a taxonomic and geographic reference. Second Edition. Smithsonian Institution Press, Washington, DC 1206pp.

Birds: Seventh Edition (1998) of the American Ornithologist's Union (AOU) Check-list of North American Birds, the 42nd supplement (2000) to the Checklist.

Amphibians:

1. Banks, R. C., R. W. McDiarmid, and A. L. Gardner, eds. 1987. Checklist of Vertebrates of the United States, the U. S. Territories and Canada. U.S.D.I. Fish and Wildlife Service. Resource Publication 166. Washington D. C. 1987. Pages 3-9.
2. Hodge, R. P. 1977. Amphibians and Reptiles in Alaska, the Yukon, and Northwest Territories. Alaska Northwest Publishing Co.

Reptiles: Banks, R. C., R. W. McDiarmid, and A. L. Gardner, eds. 1987. Checklist of vertebrates of the United States, the U. S. Territories and Canada. U.S.D.I., Fish and Wildlife Service. Resources Publication 166. Pages 10-21.

FGDC compliant Metadata:

Metadata that complies with the Federal Geographic Data Committee's Content Standard for Digital Geospatial Metadata is required for the spatial component of the Wildlife data.

*[Please note: The above list of standards is not complete, but is representative of the standards that affect the wildlife standard. A complete standard should list all related standards.]*

**5. Data Model Characteristics –**

- a. Data Model (Schema) --** Figure 1 presents the logical data model for this standard, which defines all data entities and the logical relationships among them. Data elements (attributes) are shown within the rectangle of each data element. Please confer with your State Data Administrator concerning any questions you may have regarding this data model.
- b. Data Element (Attribute) Descriptions --** Pages following the logical data model present, for each of the 19 data entities, the definition, security status, any applicable business rules. Data elements (attributes) then are listed and defined. (See Table 1.) *[Three examples are provided. Please note that data element naming must conform, as do these examples, to guidance provided in I.M. 2001-029, "Data Management Interim Guidance"]*  
<http://www.blm.gov/nhp/efoia/wo/fy01/im2001-029.html>

The diagram illustrates the following entities and their attributes:

- Project**: project\_id (NO), project\_name (A60), project\_begin\_date (D), project\_end\_date (D), project\_unit\_total (SI), project\_unit\_text (A40), project\_leader\_last\_name (A20), project\_leader\_first\_name (A20), project\_purpose\_text (A200), project\_comments\_text (TXT).
- Source**: source\_code (A4), source\_text (A50).
- Observation Type**: type\_code (A6), type\_text (A45).
- Observation**: observation\_id (NO), observation\_date (D), observation\_observer\_first\_name (A20), observation\_observer\_last\_name (A20), observation\_confirmation\_code (A1), observation\_comments\_text (TXT), segment\_proj\_unit\_no (I), segment\_begin\_time (T), segment\_end\_time (T), segment\_flight\_intensity\_name (A10), segment\_pilot\_first\_name (A20), segment\_pilot\_last\_name (A20), segment\_plane\_no (A20), segment\_vehicle\_type (A20), segment\_vehicle\_vendor\_name (A20).
- Site**: site\_id (NO), site\_latitude\_meas (A10), site\_longitude\_meas (A10), site\_elevation\_meas (I), site\_location\_comments\_text (VA255), site\_prime\_meridian\_meas (A1), site\_township\_meas (SI), site\_township\_direction\_meas (A1), site\_range\_meas (SI), site\_range\_direction\_meas (A1), site\_sector\_meas (A2), site\_quarter\_meas (A2), site\_quarter\_quarter\_meas (A2), site\_vertical\_utm\_meas (I), site\_horizontal\_utm\_meas (I), site\_or\_area\_code (A1).
- Game Management Unit**: game\_management\_unit\_code (A3), game\_management\_unit\_name (A3).
- Population**: population\_code (A6), population\_name (A30).
- Age Class**: age\_class\_code (A5), sex\_code (A1), age\_class\_text (A50).
- Species**: species\_code (NO), species\_common\_name (A35), species\_name (A40), species\_category\_code (A3).
- Family**: species\_family\_code (NO), species\_family\_name (A30).
- Field Conditions**: field\_condition\_id (NO), field\_condition\_date (D), field\_condition\_season\_name (A10), field\_condition\_precipitation\_name (A10), field\_condition\_snow\_age\_name (A10), field\_condition\_snow\_cond\_name (A10), field\_condition\_snow\_coverage\_name (A10), field\_condition\_snow\_depth\_meas (SI), field\_condition\_air\_temperature\_meas (SI), field\_condition\_cloud\_cover\_percentage (SI), field\_condition\_wind\_minimum\_meas (SI), field\_condition\_wind\_maximum\_meas (SI), field\_condition\_wind\_direction\_code (A3), field\_condition\_light\_intensity\_name (A10), field\_condition\_light\_type\_name (A10), field\_condition\_comments\_text (TXT).
- Phenology**: phenology\_code (A4), phenology\_bdt (A40).
- Mark**: mark\_id (NO), mark\_type (A10), mark\_radio\_frequency\_number (A10), mark\_color (A10), mark\_number (A10), mark\_body\_location (A10), mark\_species\_length\_meas (SI), mark\_species\_weight\_meas (SI), mark\_tissue\_sample\_code (A1), mark\_blood\_code (A1).
- Animal Name**: Animal\_id (NO), Animal\_Name\_Text (A12), Animal\_Add\_Date (D).
- Habitat**: habitat\_code (A9), habitat\_text (A62).
- Mortality**: mortality\_code (A6), mortality\_text (A50).
- Sign**: sign\_code (A5), sign\_text (A40).
- Activity**: activity\_code (A5), activity\_text (A50).

Key relationships include:

- Project** (1..1) **Source** (0..n).
- Project** (0..1) **May Contain** **Observation** (0..1).
- Source** (1..1) **Observation** (1..1).
- Observation Type** (1..1) **Observation** (1..10..n).
- Observation** (1..1) **Records** **Field Conditions** (0..n).
- Observation** (1..1) **May be Part of** **Observation** (0..n).
- Observation** (1..1) **Are Recorded During** **Field Conditions** (0..n).
- Observation** (1..1) **Records** **Site** (1..1).
- Observation** (1..1) **Contains** **Species Observed** (1..1).
- Observation** (1..1) **Recorded At This** **Species Observed** (1..n).
- Observation** (1..1) **Are Recorded During** **Species Observed** (1..n).
- Observation** (1..1) **Exists On** **Mark** (0..n).
- Observation** (1..1) **May Have** **Animal Name** (0..1).
- Observation** (1..1) **Is a** **Species Observed** (1..1).
- Observation** (1..1) **Is a** **Sign** (1..1).
- Observation** (1..1) **Is a** **Activity** (1..1).
- Observation** (1..1) **Is a** **Mortality** (1..1).
- Observation** (1..1) **Is a** **Habitat** (1..1).
- Observation** (1..1) **Is a** **Population** (1..1).
- Observation** (1..1) **Is a** **Age Class** (1..1).
- Observation** (1..1) **Is a** **Species** (1..1).
- Observation** (1..1) **Is a** **Family** (1..1).
- Observation** (1..1) **Is a** **Field Conditions** (1..1).
- Observation** (1..1) **Is a** **Phenology** (1..1).
- Observation** (1..1) **Is a** **Mark** (1..1).
- Observation** (1..1) **Is a** **Animal Name** (1..1).
- Observation** (1..1) **Is a** **Habitat** (1..1).
- Observation** (1..1) **Is a** **Mortality** (1..1).
- Observation** (1..1) **Is a** **Sign** (1..1).
- Observation** (1..1) **Is a** **Activity** (1..1).

**Table 1 Sample Data Entity and Data Element Descriptions**

<b>Entity: Project</b>	
Definition:	Information about inventory and monitoring of wildlife species projects. Projects can span any amount of time and be related to many observations.
Security:	This data set contains no sensitive information that might be withheld under the Freedom of Information Act.
Business Rules:	A project can span one day or several years. One project can have many observations over time. This provides a method for the user to tie records together for a specific purpose.
State Data Steward:	Jeff Denton
National Data Steward:	Cal McCluskey

**Attribute list:**

<b>Name</b>	<b>Code</b>	<b>Data Type</b>	<b>Mandatory</b>
project_id	PROJECT_ID	NO	TRUE
project_name	PROJECT_NAME	A60	FALSE
project_begin_date	PROJECT_BEGIN_DATE	D	FALSE
project_end_date	PROJECT_END_DATE	D	FALSE
project_unit_total	PROJECT_UNIT_TOTAL	SI	FALSE
project_unit_text	PROJECT_UNIT_TEXT	A40	FALSE
project_leader_last_name	PROJECT_LEADL_NAME	A20	FALSE
project_leader_first_name	PROJECT_LEADF_NAME	A20	FALSE
project_purpose_text	PROJECT_PURP_TXT	A200	FALSE
project_comments_text	PROJECT_COM_TXT	TXT	FALSE

**Attribute: project\_id**

*Description:*

Computer generated unique ID for the project entity

**Attribute: project\_name**

*Description:*

The name assigned to the project.

**Attribute: project\_begin\_date**

*Description:*

The date when field data collection begins in a project. This is a required field.



**Attribute: project\_end\_date**

*Description:*

The date when the last field data collection activity takes place for this project. This is not the date of data entry, but when the field observation activity ceases. This is a required field.

**Attribute: project\_unit\_total**

*Description:*

Total number of units that will be included in the project area (see project\_unit\_text for types of units).

**Attribute: project\_unit\_text**

*Description:*

A description of the type of unit count used in the project. i.e. miles

**Attribute: project\_leader\_last\_name**

*Description:*

The last name of the project leader.

**Attribute: project\_leader\_first\_name**

*Description:*

The first name of the project leader.

**Attribute: project\_purpose\_text**

*Description:*

Purpose for establishing a project. What is the intent or issue being addressed?

**Attribute: project\_comments\_text**

*Description:*

Comments about the project.

<b>Entity: Site</b>	
Definition:	The location of the animal or sign of the animal, identifying where the observation took place.
Security:	This data set may contain sensitive information that might be withheld under the Freedom of Information Act.
Business Rules:	Each observed animal must be associated with a site documented in this data base. Various identification methods for a site are allowed: latitude/longitude, legal description (Public Land Survey System), UTM coordinates, etc. These will be converted to decimal latitude/longitude for use in GIS systems.
State Data Steward:	Jeff Denton
National Data Steward:	Cal McCluskey

**Attribute list:**

<b>Name</b>	<b>Code</b>	<b>Data Type</b>	<b>Mandatory</b>
site_id	SITE_ID	NO	TRUE
site_latitude_meas	SITE_LAT_MEAS	A10	FALSE
site_longitude_meas	SITE_LONG_MEAS	A10	FALSE
site_elevation_meas	SITE_ELEV_MEAS	I	FALSE
site_location_comments_text	SITE_LOC_TXT	VA255	FALSE
site_prime_meridian_meas	SITE_PRME_CD	A1	FALSE
site_township_meas	SITE_TOWN_NO	SI	FALSE
site_township_direction_meas	SITE_TDIR_CD	A1	FALSE
site_range_meas	SITE_RANG_NO	SI	FALSE
site_range_direction_meas	SITE_RDIR_CD	A1	FALSE
site_section_meas	SITE_SECT_NO	A2	FALSE
site_quarter_meas	SITE_QRT_CD	A2	FALSE
site_quarter_quarter_meas	SITE_QQRT_CD	A2	FALSE
site_vertical_utm_meas	SITE_VUTM_MEAS	I	FALSE
site_horizontal_utm_meas	SITE_HUTM_MEAS	I	FALSE
site_or_area_code	SITE_OR_AREA_CODE	A1	FALSE

**Attribute: site\_id**

*Description:*

Computer-generated unique ID for the Site entity.

**Attribute: site\_latitude\_meas**

*Description:*

The latitude of the point location expressed in decimal degrees. The precision of this measurement is not restricted by this standard.

**Attribute: site\_longitude\_meas**

*Description:*

The longitude of the point location expressed in decimal degrees. The precision of this measurement is not restricted by this standard.

**Attribute: site\_elevation\_meas**

*Description:*

The location elevation, expressed in meters above MSL.

**Attribute: site\_location\_comments\_text**

*Description:*

Comments about the location.

**Attribute: site\_prime\_meridian\_meas**

*Description:*

Prime Meridian Code

**Attribute: site\_township\_meas**

*Description:*

Township number

**Attribute: site\_township\_direction\_meas**

*Description:*

Township direction, i.e. N or S

**Attribute: site\_range\_no**

*Description:*

Range Number

**Attribute: site\_range\_direction\_meas**

*Description:*

Range direction, i.e. E or W

**Attribute: site\_section\_meas**

*Description:*

Section Number

**Attribute: site\_quarter\_meas**

*Description:*

Aliquot Part - quarter of a section

**Attribute: site\_quarter\_quarter\_meas**

*Description:*

Aliquot Part – quarter-quarter of a section

**Attribute: site\_vertical\_utm\_meas**

*Description:*

Vertical UTM measurement

**Attribute: site\_horizontal\_utm\_meas**

*Description:*

Horizontal UTM measurement

**Attribute: site\_or\_area\_code**

*Description:*

Code describing if the location parameters are a reference to a point or an area.

<b>Entity: Species</b>	
Definition:	A scientific grouping of animals below the Family that have common attributes.
Security:	This data set may contain sensitive information that might be withheld under the Freedom of Information Act.
Business Rules:	The full scientific name must include at least a Genus and Species name, in that order, and may include subspecies names where needed. Scientific names must conform to valid names in the Alaska Wildlife Observation System data dictionary.
State Data Steward:	Jeff Denton
National Data Steward:	Cal McCluskey

**Attribute list:**

<b>Name</b>	<b>Code</b>	<b>Data Type</b>	<b>Mandatory</b>
species_code	SPECIES_ID	NO	TRUE
species_common_name	SPECIES_COM_NAME	A35	TRUE
species_name	SPECIES_NAME	A40	TRUE
species_category_code	SPECIES_CAT_CODE	A3	FALSE

**Attribute: species\_id**

*Description:*

A unique number assigned by the database to identify a species

**Attribute: species\_common\_name**

*Description:*

The regional common name for a specific species.

**Attribute: species\_name**

*Description:*

The scientific (Latin) name for a specific species including subspecies where applicable.

**Attribute: species\_category\_code**

*Description:*

A code to sort the species into categories.